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Constraining the level of direct CP violation in charm-meson two-body decays

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The study of charm-quark-related phenomena is a cornerstone of the flavour physics programme, as it offers unique opportunities to test the Standard Model and to explore different new physics scenarios. The observation of the CP asymmetries in the decays of neutral charm mesons to two light pseudoscalars by LHCb imposes up to date a question without a definite answer. In previous work we calculated the effect of final-state interactions on the decay amplitudes with the use of dispersion relations in order to predict the CP asymmetries and concluded that the latter fall short of the experimental measurements. In this work we explore further the hypothesis of the isospin-zero rescattering being limited to the pion and kaon pairs and avoid the implementation of rescattering input with high uncertainties. We find that with only the total strong phase of the two channels as input for the dispersion relations we still derive upper bounds on the CP asymmetries which do not reach the observed levels.

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